

REMARKS/ARGUMENTS

The arguments and amendments presented herein incorporate the arguments and amendments Applicants discussed with the Examiner during the phone interviews on July 25, 2007. Applicants submit that the arguments and amendments presented herein make the substance of the phone interview of record to comply with 37 CFR 1.133. The Examiner said they would reconsider the rejection in view of the discussed amendments and arguments, which are presented herein. If the Examiner believes that further information on the interview needs to be made of record to comply with the requirements, Applicants request the Examiner to identify such further information.

The Examiner objected to the “capable of” and “operable to” language in claims 2, 3, 8, 13-16, 19, 20, 22, 24-27, 30, and 33. (Office Action, pg. 2) Applicants amended these claims to remove this language to overcome the objection.

Applicants amended claim 21 to depend from claim 20 to overcome the objection on pg. 2 of the Office Action.

Applicants amended claims 7, 19, and 30 to correct punctuation.

1. Amended Claims 13-35 Comply with 35 U.S.C. §101

The Examiner rejected claims 13-23 as directed to non-statutory subject matter (35 U.S.C. §101). (Office Action, pg. 3) Applicants traverse with respect to the amended claims.

The Examiner rejected claims 13-23 as directed to non-statutory subject matter on the grounds the Specification provides no explicit definition of the term “circuitry”. (Office Action, pg. 3) Applicants amended claims 13-23 to remove the use of the “circuitry” language.

Applicants submit that these amendments overcome the Section 101 rejection based on the use of the term “circuitry”.

The Examiner rejected claims 13-16, 19, 24-27, and 30 under Section 101 based on the use of the language “operable to”. Applicants amended the claims to remove this language to overcome the “operable to” based Section rejection.

The Examiner rejected claims 24-35 under Section 101 on the grounds that software alone is non-statutory. Applicants amended claim 24 to recite that the “article of manufacture” comprises “at least one of hardware logic and a computer storage medium having code that is executed” to perform the claimed operations. This added requirement is disclosed on at least

para. [0019], pgs. 6-7 of the Specification. Applicants submit that this amendment overcomes the Section 101 rejection with respect to the “article of manufacture” language.

Applicants submit that the amendments overcome the Section 101 rejections and request that the Examiner withdraw these rejections.

2. Claims 1-35 are Patentable Over the Cited Art

The Examiner rejected claims 1-35 as anticipated (35 U.S.C. §102(b)) by Worrell (U.S. patent No. 5,773,709). Applicants traverse with respect to the amended claims.

Amended claims 1, 13, and 24 require: accessing a program comprising a plurality of instructions including at least one no operation (NOP) instruction; determining one instruction in the program preceding a determined NOP instruction whose movement forward to replace the determined NOP instruction will not result in data not being available when needed; and replacing the determined NOP instruction with the determined instruction preceding the determined NOP instruction.

Applicants amended claims 1, 13, and 24 to remove the “removing” limitation and add the requirements of determining one instruction in the program preceding a determined NOP instruction whose movement forward to replace the determined NOP instruction will not result in data not being available when needed; and replacing the determined NOP instruction with the determined instruction preceding the determined NOP instruction. These added requirements on pgs. 4-5 and FIG. 4 of the Specification. Applicants further note that the added requirements are substantially found in pending claims 2 and 8.

The Examiner cited col. 4, lines 55-67 and col. 5, lines 1-50 of Worrell with respect to the pre-amended version of claims 1, 2, and 8. (Office Action, pgs. 4-5 and 8). Applicants traverse with respect to the amended claims.

The cited col. 4 mentions replacing an NOP instruction for an instruction sequence on the left is replaced by the target instruction itself s. The new target instruction for the branch instruction is the instruction following the previous target instruction. The cited col. 5 mentions substituting a conditional branch instruction followed by a NOP instruction with a branch likely instruction with the target instruction replacing the new NOP instruction.

Applicants submit that nowhere does the cited cols. 4-5 of Worrell disclose moving an instruction forward to replace an NOP instruction whose movement forward will not result in

data not being available when needed. Instead, the cited Worrell discusses replacing a conditional branch followed by an NOP instruction with a branch likely and moving the target of the branch to the NOP. This does not disclose moving an instruction forward to replace the NOP when determining that moving the instruction forward will not result in data not being available when needed.

Further, when the cited Worrell discusses replacing an instruction on the left with a sequence on the right, Worrell is referring to the instructions as presented in the tables in the Specification, i.e., the instruction shown on the left and the right of the table.

Accordingly, amended claims 1, 13, and 24 are patentable over the cited art because the cited Worrell does not disclose all the claim requirements.

Claims 2-12, 14-23 and 25-34 are patentable over the cited art because they depend from one of claims 1, 13, and 34. Further, the below discussed claims provide additional grounds of patentability over the cited art.

Applicants amended claims 2, 14, and 25 to remove the replacing limitation and make the deleting limitation a further operation.

Claims 3, 15, and 26 depend from claims 1, 13, and 24, respectively, and further require deleting at least one instruction in the program that is not needed to provide the processing delay to ensure the data is available to at least one dependent instruction; and after deleting the at least one instruction, replacing at least one NOP instruction with one determined instruction whose movement forward to replace the determined NOP instruction will not result in data not being available when needed.

Applicants amended these claims to add the requirement that the instruction moved forward to replace will not result in data not being available when needed to make this requirement consistent with the limitations of the base claims. Applicants further amended these claims to clarify that the NOP instruction is deleted.

The Examiner cited the above discussed cols. 4-5 of Worrell as disclosing the additional requirements of these claims. (Office Action, pgs. 5-6) Applicants traverse with respect to the amended claims.

The cited Worrell discusses replacing a conditional branch followed by an NOP instruction with a branch likely and moving the target of the branch to the NOP. This does not disclose that after deleting an NOP instruction, the NOP instruction is replaced with the

determined instruction whose movement forward will not result in data not being available when needed.

Accordingly, claims 3, 15, and 26 provide additional grounds of patentability over the cited art because the additional requirements of these claims are not disclosed in the cited Worrell.

Amended claims 6, 18, and 29 depend from claims 2, 14, and 25 and additionally require that deleting NOP instructions in the program further comprises accessing and processing each NOP instruction by: determining whether the accessed NOP instruction is needed to delay processing of one dependent instruction following the accessed NOP instruction to ensure that data is available to the dependent instruction accessing the data; and deleting the accessed NOP instruction in response to determining that the NOP instruction is not needed to ensure that data is available to the dependent instruction accessing the data..

Applicants amended these claims to change their dependency to claims 2, 14, and 25 and to change “removing” to “deleting” to refer to the “deleting” limitation in the intervening claims 2, 14, and 25.

Applicants submit that the cited Worrell does not disclose deleting NOP instructions as claimed by determining whether the accessed NOP instruction is needed to delay processing of one dependent instruction following the accessed NOP instruction to ensure that data is available to the dependent instruction accessing the data and then deleting such instruction. Instead, the cited cols. 4-5 of Worrell discuss substituting a conditional branch instruction followed by a NOP instruction with a branch likely instruction with the target instruction replacing the new NOP instruction. This does not disclose deleting an instruction as claimed.

Accordingly, claims 6, 18, and 29 provide additional grounds of patentability over the cited art because the additional requirements of these claims are not disclosed in the cited Worrell.

Amended claims 8, 20, and 31 depend from claims 1, 13, and 24, respectively, and further require that the determining of one instruction in the program to move forward comprises determining one instruction whose movement forward to replace the determined NOP instruction will not result in data not being available to one dependent instruction following the NOP instruction.

Applicants amended these claims to account for the changes made to the base claims and recite that the instruction moved forward will not result in data not being available to one dependent instruction following the NOP instruction.

Applicants submit that the cited Worrell does not disclose a determination of an instruction to move forward whose movement forward will not result in data not being available to one dependent instruction following the NOP instruction. Instead, the cited cols. 4-5 of Worrell discuss substituting a conditional branch instruction followed by an NOP instruction with a branch likely instruction with the target instruction replacing the new NOP instruction. This does not disclose determining an instruction to move forward as claimed.

Accordingly, claims 8, 20, and 31 provide additional grounds of patentability over the cited art because the additional requirements of these claims are not disclosed in the cited Worrell.

Amended claims 10, 22, and 33 depend from claims 8, 20, and 31 and further require deleting at least one NOP instruction not needed to ensure that data accessed by the dependent instruction is available to the dependent instruction, wherein the operations of replacing accessed NOP instructions with previous non-NOP instructions are performed after deleting NOP instructions not needed to ensure that data accessed by the dependent instruction is available.

Applicants amended claims 10, 22, and 33 to clarify the relationship of these claims with the requirements of the base claims.

The Examiner cited the above discussed cols. 4-5 of Worrell as disclosing the additional requirements of these claims. (Office Action, pgs. 8-9) Applicants traverse with respect to the amended claims.

The cited Worrell discusses replacing a conditional branch followed by an NOP instruction with a branch likely and moving the target of the branch to the NOP. This does not disclose that after deleting an NOP instruction, the NOP instruction is replaced with the determined instruction whose movement forward will not result in data not being available when needed.

Accordingly, claims 10, 22, and 33 provide additional grounds of patentability over the cited art because the additional requirements of these claims are not disclosed in the cited Worrell.

Amdt. dated August 15, 2007
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Applicants amended claims 11, 23, and 34 to 33 to clarify the relationship of these claims with the requirements of the base claims.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-35 are patentable. Should any additional fees be required beyond those paid, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

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By: /David Victor/

David W. Victor
Registration No. 39,867

Please direct all correspondences to:

David W. Victor
Konrad Raynes & Victor, LLP
315 South Beverly Drive, Ste. 210
Beverly Hills, CA 90212
Tel: (310) 553-7977
Fax: 310-556-7984